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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,513	12/02/2004	Masashi Watanabe	260942US2PCT	6964
22850	7590	01/22/2007	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			NEGRON, ISMAEL	
		ART UNIT	PAPER NUMBER	
		2875		
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	01/22/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/516,513	WATANABE, MASASHI
	Examiner	Art Unit
	Ismael Negron	2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 November 2006.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 10-26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 10-12, 14-16, 18-20 and 22-26 is/are rejected.
 7) Claim(s) 13, 17 and 21 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 02 December 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's preliminary amendment filed on November 29, 2006 has been entered. Claims 10 and 22-24 been amended. No claim has been cancelled. Claims 25 and 26 have been added. Claims 10-26 are still pending in this application, with claims 10 and 22 being independent.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "77" has been used to designate different parts in different embodiments. See Figure 1 (where a frusto-conical reflector is shown), Figure 9 (where a flat reflector is shown) and Figure 11 (where a reflector having angled portions is shown). While the applicant might argue that all the shown elements are reflectors, it is a fact that they are not one and the same, but different reflectors.

The applicant is advised that the reference characters must be properly applied, with no single reference character being used for two different parts or for a given part and a modification of such part. See MPEP §608.01(g).

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement

sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-12, 14-16, 18-20, 22, 23, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561).

5. JUNG discloses a bicycle headlamp assembly having:

- **a rotor (as recited in Claim 10), Figure 3, reference number 30;**
- **the rotor including a plurality of magnet plates (as recited in Claim 10), Figure 3, reference number 30;**

- **the magnet plates being attached to spokes of a bicycle wheel along the circumference of the wheel (as recited in Claim 10),** column 2, lines 8-10;
- **each magnet plate having a form of an arc of a certain circle (as recited in Claim 10),** as seen in Figure 3;
- **each magnet plate including a plurality of magnets (as recited in Claim 10),** column 2, lines 13-18;
- **the magnets being disposed at regular circumferential spacing with alternating south and north poles (as recited in Claim 10),** as evidenced by column 2, lines 28-31;
- **a stator (as recited in Claim 10),** Figure 3, reference number 20;
- **the stator including a power-generating coil including a coil (as recited in claims 10 and 22),** Figure 3, reference number 22;
- **the power generating coil including an iron core (as recited in Claim 10),** Figure 3, reference number 21;
- **the iron core being disposed in a fixed position to face the magnetic pole faces of the magnet plates of the rotor (as recited in Claim 10),** column 2, lines 26-31;
- **a case (as recited in Claim 10),** Figure 1, reference number 14;
- **the case being separated from the stator, or containing all of the stator (as recited in Claim 10),** as seen in Figure 1;

- the case containing at least a headlamp electrical circuit (as recited in Claim 10), column 2, lines 10-13;
- a rectifying and smoothing circuit (as recited in claims 10 and 22), Figure 4, reference number 50;
- the rectifying and smoothing circuit being for rectifying, smoothing, and outputting electric power obtained from the power-generating coil (as recited in claims 10 and 22), column 2, lines 32-44;
- a light source (as recited in Claim 10), Figure 1, reference number 11;
- the light source being lit by the electric power supplied from the headlamp electrical circuit (as recited in Claim 10), as seen in Figure 4;
- the magnet plates being attached in a continuous ring shape or in separate positions (as recited in Claim 11), as seen in Figure 3; and
- the stator, comprising the power-generating coil, being separately disposed outside the case (as recited in claims 18-20), as seen in Figure 1.

6. JUNG discloses all the limitations of the claims, except:

- the circuit including a resonance circuit (as recited in claims 10 and 22);

- the resonance circuit being formed of the power-generating coil of the stator and a capacitor connected in series with the power-generating coil (as recited in claims 10 and 22);
- the resonance circuit having as a resonance frequency, a power generation frequency determined by the position of the magnets and the power-generating coil, when the bicycle is pedaled at a predetermined speed (as recited in claims 10 and 22);
- the power circuit being for rectifying, smoothing, and outputting electric power obtained from the power-generating coil of the resonance circuit (as recited in claims 10 and 22);
- a light-emitting diode (as recited in Claim 10);
- the light emitting diode (LED) being lit by the electric power supplied from the headlamp electrical circuit (as recited in Claim 10);
- a condenser lens (as recited in Claim 10);
- the lens being for focusing light emitted from the light-emitting diode in front of the bicycle and for illuminating the roadway (as recited in Claim 10);
- the LED being a white light-emitting diode (as recited in Claim 12);
- the white LED having a luminous intensity of 2 cd or higher (as recited in Claim 12);

- the power-generating coil, the headlamp electrical circuit, the light-emitting diode, and the condenser lens being contained in the case as a unit (as recited in claims 14-16);
- the headlamp electrical circuit, the light-emitting diode, and the condenser lens being contained in the case (as recited in claims 18-20);
- a constant-current circuit comprising at least two transistors, two resistors, and a capacitor, for receiving a direct current from the dc-dc converter and supplying a constant current to the light-emitting diode (as recited in Claim 23); and
- the predetermined speed being 15 km/h (as recited in claims 25 and 26).

7. LAHOS discloses a bicycle headlamp assembly having:

- **a rotor (as recited in Claim 10)**, Figure 1, reference number 16;
- **the rotor including a plurality of magnet (as recited in Claim 10)**, Figure 3, reference number 20;
- **the magnet plates being attached to spokes of a bicycle wheel along the circumference of the wheel (as recited in Claim 10)**, column 2, lines 61-64;

- **the magnets being disposed at regular circumferential spacing with alternating south and north poles (as recited in Claim 10),** as evidenced by column 3, lines 12-16;
- **a stator (as recited in Claim 10),** Figure 1, reference number 18;
- **the stator including a power-generating coil including a coil (as recited in Claim 10),** Figure 2, reference number 32;
- **the power generating coil including an iron core (as recited in Claim 10),** Figure 3, reference number 34;
- **the iron core being disposed in a fixed position to face the magnetic pole faces of the magnet plates of the rotor (as recited in Claim 10),** column 3, lines 12-16;
- **a case (as recited in Claim 10),** Figure 4, reference number 118;
- **the case being separated from the stator, or containing a part of the stator (as recited in Claim 10),** as seen in Figure 5;
- **the case containing at least a headlamp electrical circuit (as recited in Claim 10),** as seen in Figure 5;
- **the circuit including a resonance circuit (as recited in Claim 10),** as seen in Figure 7;
- **the resonance circuit being formed of the power-generating coil of the stator and a capacitor connected in series with the power-generating coil (as recited in Claim 10),** as seen in Figure 7;

- **the resonance circuit having as a resonance frequency, a power generation frequency determined by the position of the magnets and the power-generating coil, when the bicycle is pedaled at a predetermined speed (as recited in claims 10 and 22), inherent, as it is the interaction between the magnets and coil what generates the power feed to the circuit;**
- **a DC power circuit (as recited in Claim 10), Figure 6, reference number 200;**
- **the power circuit being for rectifying, smoothing, and outputting electric power obtained from the power-generating coil of the resonance circuit (as recited in Claim 10), column 3, lines 51-56;**
- **a light-emitting diode (as recited in Claim 10), Figure 4, reference numbers 136, 140 and 142;**
- **the light emitting diode (LED) being lit by the electric power supplied from the headlamp electrical circuit (as recited in Claim 10), column 3, lines 51-56;**
- **a condenser lens (as recited in Claim 10), as seen in Figure 4;**
- **the lens being for focusing light emitted from the light-emitting diode in front of the bicycle and for illuminating the roadway (as recited in Claim 10), inherent;**

- **the power-generating coil, the headlamp electrical circuit, the light-emitting diode, and the condenser lens being contained in the case as a unit (as recited in claims 14-16), as seen in Figure 5; and**
- **the headlamp electrical circuit, the light-emitting diode, and the condenser lens being contained in the case (as recited in claims 18-20), as seen in Figure 5;**
- **a constant-current circuit for receiving a direct current from the dc-dc converter and supplying a constant current to the light-emitting diode (as recited in Claim 23), as evidenced by column 4, lines 5-17; and**
- **the predetermined speed being 15 km/h (as recited in claims 25 and 26), inherent, as the resonance circuit will have a resonance frequency at any speed.**

8. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the LED light source and circuit of LAHOS in the patented structure of JUNG to increase the efficiency and light output of such device. In addition, the examiner takes Official Notice that the use of LEDs is old and well known in the illumination art. One would have been motivated since LEDs are recognized in the illumination art to have many desirable advantages, including reduced size, high efficiency, low power consumption, long life, resistance to vibrations, and low heat production, over other light sources.

9. Regarding using white light-emitting diode having a luminous intensity of 2 cd or higher (as recited in Claim 12), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use such white LED since using white light source is the art recognized standard for bicycle illumination devices. In addition, selecting a specific one of the Prior Art LED would have flown naturally to one of ordinary skill in the art at the time the invention was made as necessitated by the specific requirements of a particular application.

10. Regarding the constant-current circuit comprising at least two transistors, two resistors, and a capacitor (as recited in Claim 23), it would have been obvious to one of ordinary skill in the art to include the claimed specific number of circuit elements in the circuit of JUNG and LAHOS, as necessitated by the specific circuit requirements of a particular application.

In addition, it is noted that the instant disclosure is silent as to the non-obvious advantages of using, specifically, at least two transistors, two resistors, and a capacitor. The claimed specific number of circuit elements appears to be an obvious matter of design choice.

11. Regarding Claim 22 recitation of "said stator including a coil and an iron core disposed in a fixed position to face magnetic pole faces of a plurality of magnet plates of a rotor, said rotor including the plurality of magnet plates attached to spokes of a bicycle wheel along the circumference of the wheel, each magnet plate having the form of an arc of a certain circle and comprising a plurality of magnets disposed at regular

circumferential spacings with alternating south and north poles" the applicant is advised that the cited recitation was given little or no patentable weight as it relates to the structure of the stator. It is noted that the claimed language fails to positively recite the stator as being part of the invention, merely presenting such stator as the source of the claimed power-generating coil.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561) as applied to claim 22 above, and further in view of SZANISZLO (U.S. Pat. 5,803,574).

13. JUNG and LAHOS disclose individually, or suggest when combined, all the limitations of the claims (as detailed in previous sections), except:

- a light sensor (as recited in Claim 24);
- a manual switch (as recited in Claim 24);
- the sensor and the switch being connected to the constant-current circuit (as recited in Claim 24); and
- the constant-current circuit being configured to allow or interrupt current supply to the light-emitting diode in accordance with a signal from the light sensor, the manual switch, or both (as recited in Claim 24).

14. SZANISZLO discloses a bicycle illumination assembly having:

- **a light emitting diode (as recited in Claim 1), Figure 2, reference number 23;**
- **a power source (as recited in Claim 1), Figure 2, reference number 31;**
- **an electrical circuit (as recited in Claim 1), Figure 2, reference number 5;**
- **a light sensor (as recited in Claim 24), Figure 2, reference number 25;**
- **a manual switch (as recited in Claim 24), Figure 2, reference number 29;**
- **the sensor and the switch being connected to the electrical circuit (as recited in Claim 24), as seen in Figure 2; and**
- **the electrical circuit being configured to allow or interrupt current supply to the light-emitting diode in accordance with a signal from the light sensor, the manual switch, or both (as recited in Claim 24), column 3, lines 37-50.**

15. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to include the light control means of SZANISZLO in the bicycle headlamp assembly of JUNG and LAHOS to enable the light source of such device to be turned on only when necessary (e.g. when ambient light conditions are poor), as per the teachings of SZANISZLO.

Relevant Prior Art

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ray (U.S. Pat. 4,211,955), **Uchida** (U.S. Pat. 4,727,289), **Johnson** (U.S. Pat. 5,463,280), **Cioletti et al.** (U.S. Pat. 5,667,290), **Kanbar** (U.S. Pat. 5,850,126), **Shimizu et al.** (U.S. Pat. 5,998,925), **Lebens et al.** (U.S. Pat. 6,095,661) and **Beyerlein** (U.S. Pat. 6,578,994) disclose LED illumination devices for replacing conventional light sources, as LED are recognized in the illumination art as having many desirable advantages, including reduced size, high efficiency, low power consumption, long life, resistance to vibrations, and low heat production, over other light sources.

Allowable Subject Matter

17. Claims 13, 17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is an examiner's statement of reasons for allowance:

Applicant teaches generator-powered bicycle headlamp including a rotor having a plurality of magnets plates each including a plurality of magnets, a stator assembly having a coil and a headlamp electrical circuit, and a plurality of light emitting diodes. The magnet plates are attached to the spokes of a bicycle wheel along the

circumference of such wheel. The headlamp electrical circuit includes a resonance circuit with a capacitor in series with the coil, and a DC power circuit for rectifying and smoothing electric power obtained from the coil and supplying the electric power to the light-emitting diodes. A dome-shaped lens is provided for each of the light-emitting diodes, such lenses having a curvature, a diameter, and a thickness calculated to obtain a specified level of illumination in a specified circle at a specified distance by focusing light. A reflector is provided on a flat-plate portion above the lens, by applying a treatment for producing diffused reflection, so that approaching of the bicycle can be noticed ahead of the bicycle.

No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention, specifically a dome-shaped lens and a reflector provided on a flat-plate portion above the lens, in combination with the claimed generator-powered bicycle headlamp.

19. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

20. Applicant's arguments filed November 29, 2006 have been fully considered but they are not persuasive.

It is noted that in applicant's arguments reference is made to Claim 1, however, such claim was cancelled by the Preliminary amendment filed concurrently with the instant application. The applicant is advised that the Examiner assumed that the applicant intended to reference Claim 10, instead of cancelled Claim 1.

21. Regarding the Examiner's rejection of Claim 10 under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561), the applicant argues that the cited reference fails to disclose all the features of the claimed invention, specifically a circuit including a resonance circuit. The applicant further argues that one of ordinary skill in would, based on the disclosure of LAHOS, determine that LED are not practical for headlamps. The applicant even further argues that the Examiner failed to provide motivation for the proposed combination, and requests a reference in support of the Examiner's Official Notice.

22. In response to applicant's arguments that JUNG and LAHOS failed to disclose individually, or suggest in combination, a circuit including a resonance circuit the applicant is respectfully advised that while the claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re American Academy of Science Tech Center*, 70 USPQ2d 1827 (Fed. Cir. May 13, 2004). In this case, it is noted that the structure of resonance circuit is defined by the language of the claims as "*formed of the power generating coil of the stator and a capacitor connected*

in series with the power generating coil". LAHOS discloses in Figure 7 a circuit including a power-generating coil 32 and a capacitor 208 connected in series with the coil 32. One of ordinary skill would have recognized that the power generating frequency of the resonance circuit disclosed by LAHOS would inherently be determined by the positions and relative speed of the magnets and the coil, since it is the interaction between such magnets and coil what generates the power feed to the circuit.

23. In response to applicant's arguments that one of ordinary skill in the would, based on the disclosure of LAHOS, determine that LED are not practical for headlamps, the applicant is advised that such arguments fly in the face of fact, as evidenced by LAHOS statements regarding the patented lighting device being capable of being used to provide illumination to the front of a bicycle (see column 4, lines 34 and 35). However, even if, in arguendo, applicant's arguments were considered meritorious, the applicant is advised that suggestion or motivation to modify a prior art structure can be found in a reference, or reasoned from common knowledge in the art, scientific principles, art recognized equivalents, or legal precedent. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the use of LED in bicycle headlamps was old and well known in the art at the time of invention as evidenced, *inter alia*, by Cioletti et al. (U.S. Pat. 5,667,290).

24. In response to applicant's arguments that the Examiner failed to provide motivation for the proposed combination, the applicant is respectfully directed to previous sections 8-10 was clearly presented.

25. In response to applicant's requests that a reference be provided in support of the Examiner's Official Notice, the applicant is respectfully directed to previous section 16, where an exemplary collection of references are presented.

26. Regarding the Examiner's rejection of claims 11, 12, 14-16 and 18-20 under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561), the applicant present no arguments, except stating that such claims depend directly or indirectly from independent Claim 10 and would be allowable when/if the independent claim is allowed.

27. Regarding the Examiner's rejection of Claim 23 under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561), the applicant present no arguments, except stating that such claim depends directly from independent Claim 22 and would be allowable when/if the independent claim is allowed.

28. Regarding the Examiner's rejection of Claim 24 under 35 U.S.C. 103(a) as being unpatentable over JUNG (U.S. Pat. 5,590,946) in view of LAHOS (U.S. Pat. 5,584,561), further in view of SZANISZLO (U.S. Pat. 5,803,574) the applicant present no

arguments, except stating that such claim depends directly from independent Claim 22 and would be allowable when/if the independent claim is allowed.

Conclusion

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

30. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negron whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached at (571) 272-2378. The facsimile machine number for the Art Group is (571) 273-8300.

32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications maybe obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.



Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800



Ismael Negron
Examiner
AU 2875